WE CLAIM:

1. A method for incorporating graphics into absorbent articles, the method comprising:

providing a moving substrate to a print cylinder;

sensing a line speed reference signal from a line speed target machinery component;

rotating the print cylinder at a predetermined speed, based on the line speed reference signal, to thereby print a series of graphics on the moving substrate at a predetermined distance frequency;

sensing a phase difference signal from a phase target machinery component;

setting an actual print cylinder phase angle, based on the phase difference signal, to approximate a predetermined phase angle to thereby position the series of graphics on the moving substrate at a series of desired graphics locations.

2. The method of claim 1, wherein the substrate comprises a backsheet web.

3. The method of claim 2, wherein the method further comprises:

providing a supply of absorbent pads;

providing a topsheet web;

joining the topsheet web to the backsheet web with the absorbent pads located therebetween to thereby form an absorbent core assembly;

cutting the absorbent core assembly at a series of cuts with a cutter;

wherein the phase target machinery component comprises the cutter.

4. The method of claim 1, wherein the line speed target machinery component comprises a main drive.

5. The method of claim 1, wherein the line speed target machinery component comprises a cutter.

6. The method of claim 1, wherein the phase target machinery component comprises a cutter.

7. The method of claim 1, wherein the line speed target machinery component and the phase target machinery component comprise different machinery components.

8. The method of claim 1, wherein the line speed target machinery component and the phase target machinery component comprise the same machinery component.

9. The method of claim 1, wherein the line speed reference signal is generated by an encoder.

10. The method of claim 1, wherein the phase difference signal is generated by an inductance sensor.

11. The method of claim 1, wherein the series of graphics comprises a series of wetness indicators.

12. The method of claim 1, wherein the series of graphics comprises a series of combined wetness indicators and decorative graphics.

13. The method of claim 1, wherein the print cylinder comprises a flexographic print cylinder.

14. The method of claim 1, wherein the method further comprises:

providing the moving substrate to a second print cylinder;

rotating the second print cylinder at the predetermined speed, to thereby print a second series of graphics on the moving substrate at the predetermined distance frequency.

15. The method of claim 14, wherein the series of graphics comprises a series of wetness indicators and the second series of graphics comprises a series of decorative graphics.

16. The method of claim 1, wherein the method further comprises:

detecting a shutdown mode from the line speed reference signal;

disengaging the print cylinder from the substrate; and

rotating the print cylinder at an idle speed.

17. The method of claim 1, wherein the method further comprises:

detecting a startup mode from the line speed reference signal;

accelerating the print cylinder from an idle speed to the predetermined speed; and

engaging the print cylinder with the moving substrate.

18. An absorbent article manufactured according to the method of claim 1, wherein the absorbent article is selected from the group consisting of: a baby diaper, a baby training pant, and an adult incontinence article.

19. A system for incorporating graphics into absorbent articles, the system comprising:

a substrate web path adapted to provide a moving substrate to a print cylinder;

a line speed reference signal sensor associated with a line speed target machinery component and adapted to generate a line speed reference signal;

a phase difference signal sensor associated with a phase target machinery component and adapted to generate a phase difference signal;

a printer controller adapted to operate the print cylinder at a predetermined speed, based on the line speed reference signal, to thereby print a series of graphics on the moving substrate at a predetermined distance frequency;

the printer controller being further adapted to set an actual print cylinder phase angle, based on the phase difference signal, to approximate a predetermined phase angle to thereby position the series of graphics on the moving substrate at a series of desired graphics locations.

20. The system of claim 19, wherein the moving substrate comprises a backsheet web.

21. The system of claim 20, wherein the system further comprises:

an absorbent pad supply path adapted to convey an absorbent pad supply;

a topsheet web path adapted to provide a topsheet web;

a sealer adapted to join the topsheet web to the backsheet web with the absorbent pads located therebetween to thereby form an absorbent core assembly;

a cutter adapted to cut the absorbent core assembly at a series of cuts;

wherein the phase target machinery component comprises the cutter.

22. The system of claim 19, wherein the line speed target machinery component comprises a main drive.

23. The system of claim 19, wherein the line speed target machinery component comprises a cutter.

24. The system of claim 19, wherein the phase target machinery component comprises a cutter.

25. The system of claim 19, wherein the line speed target machinery component and the phase target machinery component comprise different machinery components.

26. The system of claim 19, wherein the line speed target machinery component and the phase target machinery component comprise the same machinery component.

27. The system of claim 19, wherein the line speed reference signal sensor comprises an encoder.

28. The system of claim 19, wherein the phase difference signal sensor comprises an inductance sensor.

29. The system of claim 19, wherein the series of graphics comprises a series of wetness indicators.

30. The system of claim 19, wherein the series of graphics comprises a series of combined wetness indicators and decorative graphics.

31. The system of claim 19, wherein the print cylinder comprises a flexographic print cylinder.

32. The system of claim 19, wherein the system further comprises:

a second print cylinder, wherein the substrate web path is adapted to provide the moving substrate to the second print cylinder; and

wherein the printer controller is further adapted to rotate the second print cylinder at the predetermined speed, to thereby print a second series of graphics on the moving substrate at the predetermined distance frequency.

33. The system of claim 32, wherein the series of graphics comprises a series of wetness indicators and the second series of graphics comprises a series of decorative graphics.

34. The system of claim 19, wherein the printer controller is further adapted to detect a shutdown mode from the line speed reference signal, disengage the print cylinder from the substrate, and rotate the print cylinder at an idle speed.

35. The system of claim 19, wherein the printer controller is further adapted to detect a startup mode from the line speed reference signal, accelerate the print cylinder from an idle speed to the predetermined speed, and engage the print cylinder with the moving substrate.

36. The system of claim 19, wherein the substrate with the series of graphics printed thereon is incorporated into an absorbent article, the absorbent article being selected from the group consisting of: a baby diaper, a baby training pant, and an adult incontinence article.

37. A method for incorporating graphics into absorbent articles, the method comprising:

providing a moving substrate to a graphic applicator;

sensing a line speed reference signal from a line speed target machinery component;

rotating the graphic applicator at a predetermined speed, based on the line speed reference signal, to thereby apply a series of graphics on the moving substrate at a predetermined distance frequency;

sensing a phase difference signal from a phase target machinery component;

setting an actual graphic applicator phase angle, based on the phase difference signal, to approximate a predetermined phase angle to thereby position the series of graphics on the moving substrate at a series of desired graphics locations.

38. The method of claim 37, wherein the substrate comprises a backsheet web.

39. The method of claim 38, wherein the method further comprises:

providing a supply of absorbent pads;

providing a topsheet web;

joining the topsheet web to the backsheet web with the absorbent pads located therebetween to thereby form an absorbent core assembly;

cutting the absorbent core assembly at a series of cuts with a cutter;

wherein the phase target machinery component comprises the cutter.

40. The method of claim 37, wherein the line speed target machinery component comprises a main drive.

41. The method of claim 37, wherein the line speed target machinery component comprises a cutter.

42. The method of claim 37, wherein the phase target machinery component comprises a cutter.

43. The method of claim 37, wherein the line speed target machinery component and the phase target machinery component comprise different machinery components.

44. The method of claim 37, wherein the line speed target machinery component and the phase target machinery component comprise the same machinery component.

45. The method of claim 37, wherein the line speed reference signal is generated by an encoder.

46. The method of claim 37, wherein the phase difference signal is generated by an inductance sensor.

47. The method of claim 37, wherein the series of graphics comprises a series of wetness indicators.

48. The method of claim 37, wherein the series of graphics comprises a series of combined wetness indicators and decorative graphics.

49. The method of claim 37, wherein the graphic applicator is a cut-and-space device.

50. The method of claim 37, wherein the method further comprises:

detecting a shutdown mode from the line speed reference signal; and

disengaging the graphic applicator from the substrate.

51. The method of claim 37, wherein the method further comprises:

detecting a startup mode from the line speed reference signal;

accelerating the graphic applicator to the predetermined speed; and

engaging the graphic applicator with the moving substrate.

52. An absorbent article manufactured according to the method of claim 37, wherein the absorbent article is selected from the group consisting of: a baby diaper, a baby training pant, and an adult incontinence article.

53. A system for incorporating graphics into absorbent articles, the system comprising:

a substrate web path adapted to provide a moving substrate to a graphic applicator;

a line speed reference signal sensor associated with a line speed target machinery component and adapted to generate a line speed reference signal;

a phase difference signal sensor associated with a phase target machinery component and adapted to generate a phase difference signal;

a graphic applicator controller adapted to operate the graphic applicator at a predetermined speed, based on the line speed reference signal, to thereby apply a series of graphics on the moving substrate at a predetermined distance frequency;

the graphic applicator controller being further adapted to set an actual graphic applicator phase angle, based on the phase difference signal, to approximate a predetermined phase angle to thereby position the series of graphics on the moving substrate at a series of desired graphics locations.

54. The system of claim 53, wherein the moving substrate comprises a backsheet web.

55. The system of claim 54, wherein the system further comprises:

an absorbent pad supply path adapted to convey an absorbent pad supply;

a topsheet web path adapted to provide a topsheet web;

a sealer adapted to join the topsheet web to the backsheet web with the absorbent pads located therebetween to thereby form an absorbent core assembly;

a cutter adapted to cut the absorbent core assembly at a series of cuts;

wherein the phase target machinery component comprises the cutter.

56. The system of claim 53, wherein the line speed target machinery component comprises a main drive.

57. The system of claim 53, wherein the line speed target machinery component comprises a cutter.

58. The system of claim 53, wherein the phase target machinery component comprises a cutter.

59. The system of claim 53, wherein the line speed target machinery component and the phase target machinery component comprise different machinery components.

60. The system of claim 53, wherein the line speed target machinery component and the phase target machinery component comprise the same machinery component.

61. The system of claim 53, wherein the line speed reference signal sensor comprises an encoder.

62. The system of claim 53, wherein the phase difference signal sensor comprises an inductance sensor.

63. The system of claim 53, wherein the series of graphics comprises a series of wetness indicators.

64. The system of claim 53, wherein the series of graphics comprises a series of combined wetness indicators and decorative graphics.

65. The system of claim 53, wherein the graphic applicator is a cut-and-space device.

66. The system of claim 53, wherein the graphic applicator controller is further adapted to detect a shutdown mode from the line speed reference signal, and disengage the graphic applicator from the substrate.

67. The system of claim 53, wherein the graphic applicator controller is further adapted to detect a startup mode from the line speed reference signal, accelerate the graphic applicator to the predetermined speed, and engage the graphic applicator with the moving substrate.

68. The system of claim 53, wherein the substrate with the series of graphics applied thereto is incorporated into an absorbent article, the absorbent article being selected from the group consisting of: a baby diaper, a baby training pant, and an adult incontinence article.